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Abstract

Findings from a study of living accommodations for young people are given in the first part. Features are identified that are regarded as important by management and residents. Suggestions are made as to how user response may be predicted and the responses of the residents to eight schemes are examined in detail. Also considered are--(1) the provision for the necessities of daily living asscciated with study bedrooms, and (2) the more general communal facilities with reference to those required by young people living away from home. The second part gives the results of a survey of residents' experience of storage units and furniture in study bedrooms. (RK)

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Hostel user study

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HOSTEL USER STUDY:
1. Living accommodation for young people
2. Storage fitments and furniture

Phyllis Allen

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The first part of this paper gives findings from a study of living accommodation for young people. It identifies features regarded as important by management and residents, suggests how user response to accommodation may be predicted, and examines the responses of the residents at eight schemes studied in detail. The paper also considers provision for the necessities of daily living associated with study bedrooms, and then more general communal facilities with reference to those now required by young people living away from home.
The second part gives the results of a survey of residents' experience of storage fitments and furniture in study bedrooms.

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HOSTEL USER STUDY

1 Living accommodation for young people

This article by PHYLLIS ALLEN *of the Building Research Station gives the findings from a study of living accommodation for young people. It identifies features regarded as important by management and residents and suggests means for predicting user responses.*
The study falls into two parts: the first deals with residents and their response to study-bedrooms provided at eight establishments and the second gives findings on the schemes as a whole. Provision for the necessities of daily living associated with study-bedrooms, and more general communal facilities required by young people living away from home, are considered.
The study received valuable support from those responsible for buildings, from user representatives, from past residents at some schemes and from current residents and this is gratefully acknowledged

Because of their education, training or work, increasing numbers of young people now need to live away from their families or other early homes[1]. The living accommodation purposely provided for such single people has been the subject of a study by the Building Research Station[2]. The study forms a natural development from the BRS studies of family living and of housing for the elderly.
In deciding to study purpose built accommodation it was not assumed that college, hall of residence, hostel or student housing is necessarily the best for young people away from home. In Britain and certain other countries, however, the practice has developed of providing separate accommodation for university and other students at community expense[3]. This is often of a standard superior to that obtainable by many wage earners of similar age. Much of it is expensive in capital, running and maintenance costs and is dependent on a considerable servicing staff. The types of provision have been questioned and the supposed benefits challenged in many quarters[4]. It therefore seemed relevant to study examples, and try to provide design recommendations based on user experience.
Eight schemes were selected for detailed study. All became available for occupation between 1962 and 1965. They cater for a variety of types of young people and range in size: four have seventy to a hundred residents, the rest have about 150, 200, 300 and 500 respectively (see table II).
The range of response to questionnaires given to current users was from 62-90 per cent, per scheme, with responses at some of the blocks as high as 100 per cent at one and 96 per cent at others; the average was 80 per cent. The total number of completed schedules was 1314. The experience from the eight schemes studied in detail has been

supplemented by a wide range of background information from other schemes, and by group discussions.

Residents

The residents at the eight schemes studied in detail ranged in age mainly from seventeen to twenty-five years with only a few older. Of the 1314 respondents a quarter were women, three-quarters men. Periods of residence, previous experience and occupations varied considerably. The range is summarised in table I.

Table I Characteristics of the 1314 residents at the eight schemes

		Percentage
Age	Mainly 17-25 years, a few older	
Sex	Women	25
	Men	75
Time at scheme	Few days or weeks to a year	Over 50
	Second year	33
	Third year or longer	15
Previous way of living	First experience away from home	Over 50
	From overseas	10
	Boarding school or other hostel	12
	Lodgings	27
Occupation	Apprentices, trainees or in employment	8
	Students	
	first year	30 } 92
	second year	29 } 92
	third year, postgraduate or part time	33 } 92

General characteristics of the eight schemes are given in table II.

Young people develop interests and relationships through their spare time activities. Most respondents when asked about these indicated things they had done or wanted to do, but others restricted their replies to activities possible while at their hostel, hall or college. At seven of the eight schemes the average number of separate activities listed per respondent was four and these are shown in table III separately for men and women, and for town, suburban and country schemes. There are the expected differences between men and women on outdoor activities (other than water sports) and on quiet activities. Only 55 per cent of the women at the scheme for men and women mentioned quiet activities as against over 70 per cent at the two schemes for women only. It is noted that the nurses at two schemes showed particular interest in water sports. The expected difference on entertainment is found between respondents from town and country schemes, but the greater participation of respondents from both town and suburban schemes in sound-making activities, and also of those from country schemes in indoor games and dancing, and in meeting people at pubs, clubs, and so on are important.

Study-bedrooms

Individual rooms may be bedrooms intended only for sleeping and directly associated activities and requirements, rooms for people with special needs, or study-bedrooms for work and leisure, including reception of visitors[5].

At six of the eight schemes, the study-bedrooms are single rooms; but at two there are also some rooms for two people.

Table II Characteristics of the eight schemes studied

Scheme	Type of sponsor	Building			Response†
		No of storeys	First occupied	Date user inquiry schedules completed (number of schedules)	
One Women's hostel in city suburb mainly for students of nursing and teaching (seventy-four in single and double rooms)	Large voluntary organisation	Three (part single-storey)	May 1965	November 1965 (48)	65
Two Men's hostel in city periphery: more than half students (207 in single rooms)	Large voluntary organisation	Four (with lift) Three (annexe)	Main hostel 1952, annexe 1957, extension to annexe 1963	October-November 1965 (161)	80
Three Men's hostel in town centre (eighty-five in single rooms)	Large voluntary organisation	Four	1963	July-August 1965 (59)*	62
Four University men's hall of residence in city (161 in single and double rooms)	University Grants Committee	Sixteen	1962	November 1965-January 1966 (145)	90
Five Three university men's halls of residence in city suburb (504 in single rooms)	Department of Education and Science	Five levels, linked blocks	1964	November 1966 (419)	72 85 } 83 91
Six College for men and women in town suburb (298 in single rooms)	Department of Education and Science	Five levels, linked blocks	1963	May-July 1966 (319)*	68
Seven Hostel for women nurses and student nurses in town periphery (eighty-three in single rooms)	Regional Hospital Board	Three, in three blocks	1962	May 1966 (77)*	70 96 } 87 100
Eight Men's college in village periphery (ninety-eight in single rooms)	Department of Education and Science	Three storeys: The upper floors of two blocks	1964	November 1966 (86)	81 96 } 88

* Some from past residents

† Response percentages are based upon number of rooms occupied on the night the schedules were distributed

Table III *Favourite spare time activities and hobbies of* 895 *respondents at seven schemes*

Activity	Percentage interested				
	Women	Men	Town	Suburban	Country
Water sports, eg swimming, canoeing	22	20	22	18	27
Outdoor games, eg football, tennis	35	41	37	40	36
Other outdoor activities, eg, athletics, vehicle driving	35	52	52	41	55
Entertainment, eg theatre, cinema, ten-pin bowling	19	15	26	16	6
Sound making, playing musical instruments, listening to records, and so on	40	34	36	38	29
Indoor games, eg table tennis; and dramatics and parties	44	39	36	40	48
Meeting people in pubs, clubs, societies	14	18	12	15	25
Technical activities requiring special equipment, eg photography, dress making, model making, art	45	24	29	32	35
Quiet activities, eg writing, studying, knitting, chess, cards	61	36	36	47	48

Table IV *Room sharing response*

Opinion	Percentage	
	Women	Men
Sharing double rooms and finding favourable aspects	21	34
Occupying single rooms, but might consider sharing	6	10
In addition		
Might consider allowing friend to live in	2	1
Not willing to share	90	

Single and double rooms

With increasing numbers of young people wanting accommodation and also demands for lower charges, there might seem a case for more double rooms and smaller rooms. However young people coming into accommodation provided for them expect room standards higher than those they are prepared to accept in lodgings and flatlets that they find for themselves. This is not surprising. There is strong support for single rooms in schemes of purpose built accommodation. Management arguments in favour include administrative convenience, but also that financial savings on double rooms tend to be less than expected, especially for schemes giving a full catering and housekeeping service. The arguments from young residents in favour of single rooms show that the single room stands for privacy, independence, self-respect and a proper appreciation of one's importance. Privacy implies being able to get on with one's own activities, coming and going as one wishes, without questioning from others.

Arguments in favour of double rooms receive only limited support from young people and from management who see advantages if additional income is needed and there is a heavy local demand for rooms, or if there are strong pressures to increase capacity at particular establishments. Only rarely is the argument presented by residents that sharing a room is a good way to make a friendship or to improve one's powers of social adaptation. There is increasing difficulty in letting double rooms. If a central divider has been provided in a double room, this seriously deters letting as a single room. Young people who have to share room expect a considerable rent reduction (more than the £5 reduction on a session fee of £130 for a scheme giving weekday but not weekend catering and housekeeping services for example) to compensate them for the inconvenience, and because they do not see why the management (or landlord) should benefit financially from this.

Of the respondents sharing double rooms, only 34 per cent of men and 21 per cent of women found favourable aspects. When respondents at four schemes (schemes five to eight of table II, 901 respondents) were asked if they would share, only 10 per cent of men and 6 per cent of women replied 'yes'. Results are given in table IV.

For room sharing to work well, there should be a considerable range of choice of room companion, the choice and any subsequent change should be in the hands of residents and management should accept some under-occupation of shared rooms. Quite apart from this however it seems a basic responsibility, at least for publicly sponsored accommodation; to provide some spare capacity for emergencies and special demands.

Room shape and size

At the preliminary stages of thinking about designing a new hostel, hall, college or student housing scheme, the alternatives for room shape, and for variation in room size may seem considerable. Once a building is constructed however, shape and size frequently determine the lighting, heating, and furnishing of rooms and, how they can be used.

Young people are becoming well informed about the possibilities of designing and furnishing individual rooms; this is owing to shop window displays, special furniture exhibitions, the press, radio, television, and school and home influence, and is in marked contrast to their lack of knowledge on the costs of providing and running buildings as a whole. Thus, they are most critical on design, equipment or servicing inefficiencies.

Their training and other interests demand technical competence and they expect to find this also in the design and equipment of their rooms. They dislike waste of space, in particular waste around or in storage units. They accept and like compactness in many ways; but they require space for movement, and for their possessions, especially putting-down space for possessions, and space for display. In their study-bedrooms young people want to be able to move around with ease, and many of them also want to be able to shift the position of table or desk, and of a bed or divan, often just to change the look of a room. Personal space and a personal room are important. It should be possible for young people to make their rooms reflect their personalities and tastes.

The study-bedrooms at the eight schemes all have individual wash basins fitted, and the majority also have a built-in storage fitment. Storage fitments and furniture are the subject of a separate article[6]. The entry, the storage fitment and the wash basin compartment together usually take up the full width of the rooms on the corridor side. The exceptions to this arrangement are those in which the wash basin and built-in storage fitment form part of a partition wall. The latter arrangement cannot be recommended.

Typical single rooms of the eight schemes have 96 sq ft (8,9m²) to 144 sq ft (13,4m²) floor area. Thus the largest rooms are one-and-a-half times the size of the smallest rooms in floor area.

Studies of office buildings show that the best depth of room

from the standpoint of daylighting seems about 11ft to 12ft (3350mm to 3660mm).[11] Because study-bedrooms are used for other purposes as well as office type activities, the room depth could be somewhat greater—say up to 15ft (4570mm), bearing in mind that the desk can usually be near the window. Room widths at the eight schemes are from 8ft to 12ft (2400mm to 3660mm), but the latter width is exceptional, and the more usual width of the larger rooms is 9ft 9in (3000mm). At some of the schemes the windows of the study-bedrooms occupy the full width of the room.

The eight schemes have floor to ceiling heights from 7ft 6in to 9ft 6in (2280mm to 2900mm). According to the type of construction in new work, three floor to ceiling standardised heights are expected: 7ft 6½in, 7ft 8½in and 7ft 10½in (2300mm, 2350mm and 2400mm.)[7] These heights are lower than some of the floor to ceiling heights of these study-bedrooms. Lower ceiling heights may affect response to room shape and size, but within the dimensions considered here, it is expected that study-bedrooms with the proposed standardised heights should be satisfactory for young people.

The respondents' experience at schemes four to eight on the size of the study-bedrooms and their adequacy for student use is shown in table v. Particularly satisfactory students' rooms are marked*.

Table v *Single rooms for students*

Approx floor area (wall to wall measurements)		Effective floor area (amount taken up by fixtures deducted)		User response, room size satisfactory	Room size (width × depth)	
m²	sq ft	m²	sq ft	Percentage	mm	ft/in
12,5	135	10,9	117	87 (231 people at two schemes)	2970×4270 or 2740×4570	9ft 9in×14ft or 9ft×15ft
12,1	130*	10,3	111	92 (419 people at one scheme)	2670×4500	8ft 9in×14ft 9in
11,6	125*	9,9	107	94 (396 people at two schemes)	2870×4080 or 2740×3770	9ft 5in×13ft 4½in or 9ft×12ft 4½in†

*See text
† 11sq ft off the room

If a single room size is required for standardised construction, one of these might be considered according to the size and shape of room desired. It is important to achieve a balance giving users space for movement, yet not saddling schemes with capital and running costs heavier than they need be for the type of use and user. It is the proportions as well as the actual size, with their windows, placing of doors, fitments and furniture that make these rooms so acceptable for student working and living.

However not all young people living away from home are students; and some prefer to spend less money on their living accommodation. Single rooms of 75 sq ft (6,97m²) floor area are known to be acceptable as bedrooms for young people in family housing where use is restricted to sleeping and directly associated activities[2]. Also 75 sq ft (6,97m²) has proved acceptable for young people in communal accommodation for limited leisure activities where the privacy of a single room is associated with promotion from sharing a room with others. With rooms over 75 sq ft (6,97m²) but less than 90 sq ft (8,36m²), no administrator reported these sizes as satisfactory for study-bedrooms or other work and leisure use, but at one scheme, a hostel for both young men and women, rooms of 90 sq ft (8,36m²) are reported by hostel staff as satisfactory for these students. Other experience of rooms of 90 sq ft (8,36m²) shows these to be too tight for young people with many interests and spare time activities. Table vi shows a range of choice of single room sizes for young people of the fifteen to twenty-four age group as a whole.

Some young people, when first away from home and coming to a general hostel rather than to one directly associated with an educational or training course, may be better off in their first few weeks in a room with two or three others of about the same age. About one in ten young people may be prepared to share longer, but only if the advantages including the financial benefit, seem worthwhile to them. In an emergency more may respond to requests for room sharing. but not more than one in five should be expected to do so, Rooms of 195 sq ft (18,12m²) floor area (178 sq ft (16,54m²) effective floor area) were found satisfactory as double rooms by as many as 97 per cent of those using them at scheme four. It seems that if only half this floor area—say 90 sq ft to 100 sq ft (8,36m² to 9,29m²) net or gross—can be afforded per person, a special user study of the type of young person and the categories of activity should be made to see how best to allocate the space.

Table vi *Range of choice of single room sizes for young people generally*

Floor area (wall to wall measurements)		Circumstances of choice
m²	sq ft	
8,83	95	Short stay, special circumstances, single girl's first time away from home
9,75	105	Economic, generally acceptable by younger people
10,22 11,15 11,61 12,07	110 120 125 130	General use, students of any year and younger staff members*
12,54	135	Need not be larger for most users

* Staff members also need a separate sitting-room or general purpose living-room where they can entertain students and other guests

Other features of provision in study-bedrooms

Artificial lighting User response on adequacy of artificial lighting varied with provision. Results are given in table vii.

Table vii *Artificial lighting in study-bedrooms*

Room size (ft²)		Capacity of electric light bulbs	User response
m²	sq ft	watts	
10,3	111	160 235	Residents tended to rearrange bulbs to suit themselves
11,61	125	235 250	94 per cent satisfied
12,10 12,54	130 135	140	59 per cent satisfied, others tended to increase capacity of light bulbs

Managements of hostels, halls and colleges do not usually take kindly to residents who increase the capacity of lighting provided in study-bedrooms. Where users had some freedom in this respect, the bulbs for a ceiling light might be 60watts, 100watts or 150watts according to user preference, type and capacity of lighting fixture to the mirror above the wash

basin, and number of portable lamps the user had obtained. The bulbs for reading lamps showed a similar capacity range.

Electrical socket outlets User response on provision for socket outlets in study-bedrooms similarly varied with provision. Responses are shown in table VIII.

Table VIII *Socket outlets in study-bedrooms*

Socket outlets	User response (percentage satisfied)
(a) One 2amp	44
(b) One 2amp and one 13amp	66
(c) As (b) and also two wall lights (no ceiling light) and acceptable light to mirror over wash basin	94

Heating Results showed 90 per cent of the students at two schemes having radiators with individual controls found these adequate. More detailed results are summarised in table IX.

Table IX *Room heating in study-bedrooms*

Provision	User response (percentage satisfied)
(a) Radiators without individual controls	63
(b) Radiators with minimal individual control, and wall fire on prepayment meter	70
(c) Radiators with acceptable individual control	90
(d) As (c) with an electric wall fire with time switch and not on prepayment meter	96

Noise

Noise transmission within a hostel can be an intractable problem. The remarkably high proportion of 82 per cent of nurses and student nurses at scheme seven found the sound reduction of noise from other rooms adequate with one partition of 9in (228mm) and the other of 4½in (114mm) brick. At schemes where partitions were of 3in (76mm) hollow clay blocks, one-third only of the students and other respondents found the sound reduction adequate. At scheme four, noise from the lift was especially disturbing.

Priorities

On the experience of this study, artificial lighting provision in study-bedrooms for students and young workers likely to be engaged on close work, and to have intensive periods of concentration, should be brought up to current recommendations of good practice[8]. This is the most urgent requirement.

Noise inadequacies are less easily dealt with, but improvements would be to provide resilient floor coverings or sound absorbent ceilings in corridors and other areas giving direct access to study-bedrooms, and to ensure that moving parts such as latches, locks and hinges of doors are adjusted and maintained so that they can be used silently. The ratio of doors to floor area for this type of accommodation demands this special attention.

If small items that cause annoyance and strain are dealt with adequately, tensions can be reduced. There is then the possibility of a better understanding of some of the larger issues of growing up, and of living with other people in a community.

Necessities of daily living associated with study-bedrooms

Provision for the necessities of daily living associated with study-bedrooms is considered and then the more general communal facilities provided in hostel, hall of residence, or college, with those now required by young people[9]. Mandatory requirements for housing[10], and cost limits and other guidance for student residence[5], should of course be noted.

Sanitary facilities

In all eight schemes, wash basins were provided in the study-bedrooms. The investigation shows that other sanitary facilities at the rate of 1 wc and 1 bath to six people[2] can be satisfactory if, as with nurses and student nurses on shift duties, not all residents have similar timetables. The internal circulation of the hostel should allow flexibility in sharing nearby facilities. These should be fairly easily accessible either on the same or an adjacent floor. Where residents have nearly similar timetables, one wc to four people is desirable. Showers can be used partly as an alternative and partly to supplement provision of baths. However, it seems common for shower installations to develop faults; special care is required in the design, use and maintenance of shower places, and in choice of equipment. Examples of satisfactory arrangements include suites of two, three or four study-bedrooms with their own bathroom and wc, all off an individual lobby and entrance door; and also a shower and wc between pairs of rooms. Access areas to shared facilities are, in fact, meeting places. Access and facilities should be conveniently arranged and of pleasing appearance, as well as maintained in good order. Provision for residents should be supplemented by wc provision for day staff and for visitors. Use by residents of this supplementary wc provision should be expected.

Some young business and professional people are prepared to pay for individual facilities. Some schemes are known in which this has been arranged satisfactorily, with flats or flatlets integrated with groups of study-bedrooms having shared facilities.

Wcs of 2ft 7½in × 4ft 7½in (800mm × 1410mm) and 2ft 6in × 5ft (0760mm × 1520mm), and bathrooms of 5ft × 6ft 6in (1520mm × 1980mm) floor area have proved satisfactory in size for most users (these are the same dimensions as obtain in housing).

Residents' kitchen utility rooms and kitchen common-rooms

The minimum need is for a kitchen utility room of floor area 40 sq ft to 70 sq ft (3,72m² to 6,50m²) for preparing hot snacks, drinks and other limited domestic requirements for each group of eight to ten residents.

A more desirable provision is a kitchen common-room for preparing and serving light meals and hot drinks and as a place for odd jobs and social activity. For this type of room there is a range of possibilities, with rooms 90 sq ft to 100 sq ft (8,36m² to 9,29m² per group of four up to eight or nine residents; or 150 sq ft to 200 sq ft (13,94m² to 18,58m²) per group of twelve to eighteen residents. Such rooms can be used at all times and are likely to become increasingly needed.

With each of these two types of provision it is assumed that main meals are available in a central dining-room or refectory. Where, however, residents are regularly or solely dependent on their own resources for preparation of their main meals as, for example, at weekends at a scheme without a dining-hall, or in student housing schemes, a third type of provision is appropriate. A kitchen common-room adequately equipped per group of ten to twelve residents as a maximum would then be advised. For this purpose and for this maximum number of residents, kitchen common rooms of 200 sq ft to 250 sq ft (18,58m² to 23,23m²) are needed.

For each of the three types of provision, rooms should be attractively designed, reasonably well equipped, and have a management committee of elected user representatives. Kitchen common-rooms will not be substitutes at colleges and universities for junior common-rooms. Kitchen common-rooms serve household groups for the necessities of daily

living. But they also serve a social and educational purpose that will help to show up residents suitable for responsibilities within the hostel and elsewhere.

Development of household groups

At some of the eight schemes, and at many others visited during the course of the station's study, there has been evidence to show that both management and residents would welcome means whereby, at traditional hostels, halls and colleges, residence facilities could be broken down into smaller groups. Groups of four, six, nine and twelve study-bedrooms or even more, with their sanitary facilities and kitchen common-rooms as found among the eight schemes, and with also their own lobby and entrance door, would give household groups that could in part solve some current administrative problems at existing schemes, and also, at least in part, meet the requirements expressed by those advocating student housing schemes in contrast to traditional hostels and halls of residence. To provide the household facilities the investigation shows to be desirable, it may be necessary to give up one or two study-bedrooms per floor, wing, or staircase of a building in order that a convenient residents' kitchen common-room and private lobby entrance may be provided. Such arrangements could relieve many of the tensions now evident in existing hostels and halls of residence because of domestic staff shortages, financial difficulties and imbalance between original provision and current demand. The essential factor to make such arrangements work well is full participation of residents through elected representatives in management, including costing. There are no ideal sizes[1] for such household groups, but twenty-five persons seems a maximum. Size would depend on distribution of sanitary facilities and kitchen common-rooms, and on other local circumstances.

Some special features of hostels, halls and colleges

Dining-halls

Because of the set times of starting and finishing meals, dining-hall service is one of the most controversial aspects of living in hostel, hall or college. At three of the eight schemes studied in detail, formal dinner was a regular event three or four evenings each week. Two other schemes also had waitress service; residents sat at small tables and formality was minimal. At one scheme, there was family service where students waited on each other, and at the two other schemes 'cafeteria' service. The dining-halls were not necessarily in the same building as the study-bedrooms, and at two schemes provision was part of facilities for other users such as other hospital staff or day students. Other experience obtained during the station's study suggests that the formal dinner by invitation for a proportion of students at a time, with visitors, has much to commend it, so that each student may have possibly three to six formal dinners a term. These specially arranged occasions can then have a flexible timetable and conversation can continue after the meal is finished.

Dining-halls and their kitchens are expensive in capital and running costs and need to be fully used. An informed user-staff management committee is required to facilitate arrangements according to local circumstances. Thus, at one of the eight schemes, the hostel meals service provided mid-day catering for town workers. Letting-off the dining-hall and kitchens to commercial management might well be considered at some schemes, especially where kitchen common-rooms for main meals are seen to be the residents' need.

Common-rooms

Common-rooms are also a special feature of hostels, halls and colleges. These vary markedly in provision and use at the eight schemes studied in detail. In general, where there is more than one common-room, there is scope for a better distribution of the space. Scheme four is nearest to student housing with its one small common-room used also for television 13ft × 38ft 6in (3960mm × 11730mm). The common-room as distinct from the foyer at scheme six is four times as large; 74ft × 25ft (2256mm × 7620mm). The common-room at scheme seven is used for training purposes in this student nurses' residence, and the common-rooms at scheme five vary in size between the halls and according to whether they are used for television or for general purposes. These rooms at the eight schemes are attractively designed and make pleasant places for a wide range of use. At schemes six and eight, the two colleges, the foyer common-rooms are used daily by over 90 per cent of the respondents, but the common-rooms at scheme five only by 28 per cent, and at scheme seven by 2 per cent.

At all schemes, occasions may occur where a room is needed for a special gathering. This should be within the hospital or college rather than part of residence.

A foyer common-room however has much to commend it, especially if it is so designed and furnished that residents find they can have private conversations with business and other visitors whom they do not wish to invite to their group kitchen common-rooms, still less to their study-bedrooms. For hostels of fifty or more residents, a foyer common-room 500 sq ft (46,45m²) floor area may be desirable, designed and furnished so that a range of use can be achieved, but a hostel of 120 to 150 residents might need 750 sq ft to 1000 sq ft (69,68m² to 92,90m²). The important features however are shape, furnishing, movable furniture and lighting, to give flexibility in arrangement and use rather than the actual floor size. The extent of need of this provision will depend upon the relationship between the residential accommodation and amenities available in its immediate vicinity.

Indoor games and music facilities

At scheme two, the games room is off the common-room; these rooms are 28ft × 36ft (8530mm × 10970mm) and 56ft × 36ft (17070mm × 10970mm) and can be used as a single room. At scheme three, there are club facilities for local youth activities. At scheme four, there are games facilities in other buildings near by. At scheme five, there is one games room for the three halls, and although it is used by fewer respondents than any of the facilities individually provided for each hall (ie by only 56 per cent of respondents) it is considered to be the major weakness of the halls' provision. Possibly this comparative lack of use is due to hopelessness—with one dart board, and one table-tennis table for over 500 residents. Indoor games facilities had still to be provided at scheme six, and there was no provision at scheme seven. At scheme eight, a games room is in a separate building.

Scheme three has a gymnasium as part of the club facilities; this amenity is well used, and much appreciated, but it would have been better if it had been in a separate building. When the gymnasium is used by vigorous young men the whole of the hostel knows!

At scheme eight there are both badminton and squash courts used respectively by one-third and half of the respondents. It is not possible to provide amenities of this type for many individual schemes, and linking with other local amenities and local players is desirable.

Linking the evidence of the schemes with the activities listed

in table III in the earlier part of this report, it seems that at any scheme, a games room for table tennis, darts, and so on and a music room for beat groups, orchestra and individual practice should be available within walking distance. Most of the schemes studied lacked adequate facilities for music making.

Where a new room has to be provided for table tennis and so on a floor area of 1000 sq ft (92,90m²) can be used as an initial basis for estimating, but much will depend on local circumstances. The siting of these rooms is of major importance, not only to avoid noise nuisance, but also so that access areas can be attractively designed and easily maintained.

Some general facilities

Reception

Reference has already been made to the value of an attractive foyer. There should be an attractive reception area at all schemes. Where this is sited, and how it is manned, will depend upon the relationship between residence and other provision. Ideally, a hostel reception should be kept manned at all reasonable times, either by staff, or staff supplemented by residents. If the latter, there is much to be said for this being on a payment basis—rather than by volunteers or an enforced duty rota. This is a point for consideration of the staff/residents hostel management committee.

Telephones

User response on telephone provision at any scheme is associated with the extent to which there is full time, as distinct from office hours, reception, porter, or any service, available to deal with incoming calls. A reception service for incoming calls is needed at all schemes; this can be linked with the entrance reception. Such a service is of special importance for nurses and others whose duties prevent them being called to an instrument to take incoming calls when at work; for those who have shifts liable to frequent time table changes; and for those who are not available when their friends are normally free. Hostel, hall or college intercommunication facilities (telephone type, not loudspeaker) are desirable linked with the reception office service, possibly in the first instance to provide a link to all kitchen common-rooms. Such an arrangement is usually restricted to the receipt of incoming calls from the national telephone service, outgoing calls being through coin box instruments.

Respondents at schemes five, six and eight reported five per cent with daily telephone use, but use varies with circumstances, special functions and other special events. It is not surprising that daily telephone use should be as high as 30 per cent of respondents from the nurses at scheme seven because of changes of shift duties, night duties and week-end work. At all eight schemes over three-quarters of the students had some telephone use, and no use came only from 10 per cent of respondents at schemes five, six and eight.

Instruments need much better acoustic protection than the acoustic shields now provided to give user privacy and avoidance of noise disturbance. Choice of position for instruments can help to prevent noise disturbance, but one out of three coin box instruments should be in a fully enclosed soundproof kiosk.

There were not enough instruments for outgoing calls at all schemes studied. The scale of provision of coin box instruments to be aimed at could be one for each kitchen common-room or household group. A more immediate target could be one for each group of twenty-four to thirty residents. It may be more convenient if several prepayment installations are sited together near scheme entrances, and others in large hostels at least in pairs. Provision should be related to near-by public facilities, and staff may be willing to offer use of their private telephones for special needs.

Telephone requirements vary, but looking ahead, use can be expected to increase with improvement in the national telephone service. It is noted, for example, that in some schemes in North America, individual instruments are provided in study-bedrooms. These may be limited to use for incoming calls; rooms are often for two people and there can be consequent disturbance.

Laundry

The response to provision of laundry facilities is to some extent associated with location of schemes. Schemes one and three have commercial launderettes conveniently near. While the women students at scheme one find it difficult to raise the money for the commercial launderette, most of the young business and professional men at scheme three, with a sensible arrangement whereby two men take the washing for three, find the expense of the commercial launderette no problem. At almost all schemes with special equipment for the washing and drying of clothes there were comments on the inadequacies of the equipment, and the frequency with which the machines went wrong. From the background information, it would seem that commercial provision of mechanical equipment at least at large hostels might be worth while, as well as drip-dry facilities above washbasins in study-bedrooms. The largest laundry rooms provided at the eight schemes were 130 sq ft (12,08m²) at scheme six, and 144 sq ft (13,38m²) at scheme eight; these sizes were satisfactory. At scheme four, the washing machines were used weekly by 70 per cent of the respondents.

Drying facilities for wet outdoor clothing and footwear are essential, and the most satisfactory arrangements are those incorporated with the sanitary facilities, but so that the possibility of theft is minimal.

Television

The differences in the daily use of the room with television between schemes four and five (20 per cent) and schemes six to eight (4 per cent) of the eight schemes studied in detail are in some respects related to the provision. At scheme four, the television is in the one and only common-room at entrance level of a sixteen-storey block. At scheme five, the television is in common rooms that are also passageways, and therefore if the programme attracts it is easy to pause and look. At schemes one to three and six to eight, residents have to go to special rooms to view television. Looking ahead, it is expected that kitchen common-rooms may have their own rental television sets. Regular use for special feature viewing can be expected; and some of the more useful of these tend to be given late in the evening.

Other facilities

Two other general facilities required by residents are an odd-job room for dirty jobs, and space for vehicle parking and vehicle attention.

Adequate attention to refuse disposal and other housekeeping requirements is essential at all schemes. These aspects of community living will increase their impact on residents as schemes for student housing develop.

Schemes as a whole

User satisfaction

Earlier it has been suggested how existing schemes of hostels, halls and colleges might be made into household groups, and so become more like some of the current proposals for student housing. It is however necessary to give the

response to living at the eight schemes as they were at the time when studied. Most of the accommodation was occupied by young people who applied, and were accepted (either directly or indirectly through college or other training acceptance) for these examples of purpose built accommodation.

Of the respondents at the eight schemes given detailed study 85 per cent considered their living accommodation met most of their needs. The response varied between men (83 per cent) and women (94 per cent) and between schemes (one, six and two, having 98, 96, and 94 per cent). Eleven per cent (men 14 per cent, women 1 per cent) qualified their response. Three per cent (men 2 per cent, women 4 per cent) were not satisfied, the highest of these being 13 per cent of the nurses and student nurses at scheme seven.

Unless the reason for living in purpose built accommodation is satisfactory, response to the living accommodation is unlikely to be satisfactory, So far as the station's study could ascertain there are no reasons why the great majority of young people at each of the eight schemes should not have been satisfied with their purpose in staying there. It is therefore reasonable to assess any adverse response according to features of the schemes, and not to career or related factors. At scheme seven, where there is the highest proportion of residents not satisfied with the accommodation, when they were asked to state their choice of accommodation where their training permitted, as many as 42 per cent of the student nurses specified staying in the hostel, and of second and third year students and trained nurses, almost 50 per cent opted for remaining in this hostel. Of the 824 respondents at schemes five, six and eight, some 40 per cent gave comparable favourable answers on the advantages of continuing to live there.

The investigation did not set out to cover costs, and no specific recommendations can therefore be made. What information was available suggested that there is a very wide range in the cost of what is for practical purposes very similar accommodation and that the circulation space and provision of ancillary facilities can be more important in their influence on cost than the study-bedrooms and their equipment.

Table XII shows the costs of five schemes in terms of cost per resident. General satisfaction is not related to cost. (The first four schemes are reasonably comparable; scheme six includes other buildings in the cost, which is consequently much higher in proportion.)

Table X *Cost per young person resident—five sample schemes*

Sample scheme	Cost per young person resident, 1963 prices (£)	Percentage of residents generally satisfied
Two	1190 annexe	94
Three	1290	83
Seven	1704	82
Four	1989	72
Six	2607	96

It is the experience of this study that the great majority of young people living away from parental or other family homes can benefit by experience of the ways of living considered in this investigation, as well as by student housing and other ways where some will take more direct responsibilities. Changes in ways of living for young people should be part of the normal progress of the development and enjoyment of living for single as well as for married people of fifteen to twenty-four years of age.

Acknowledgement

This paper deals with work forming part of the programme of the Building Research Station and is published by permission of the director.

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AJ **SfB (88)**

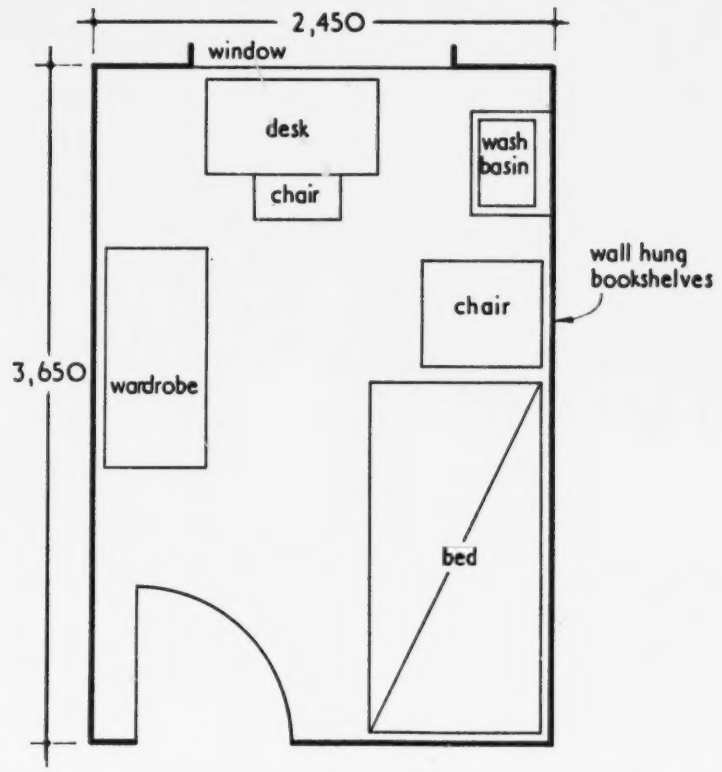
Technical study **UDC**
Spaces, fixtures: Residential buildings

HOSTEL USER STUDY

2 Storage fitments and furniture in study bedrooms

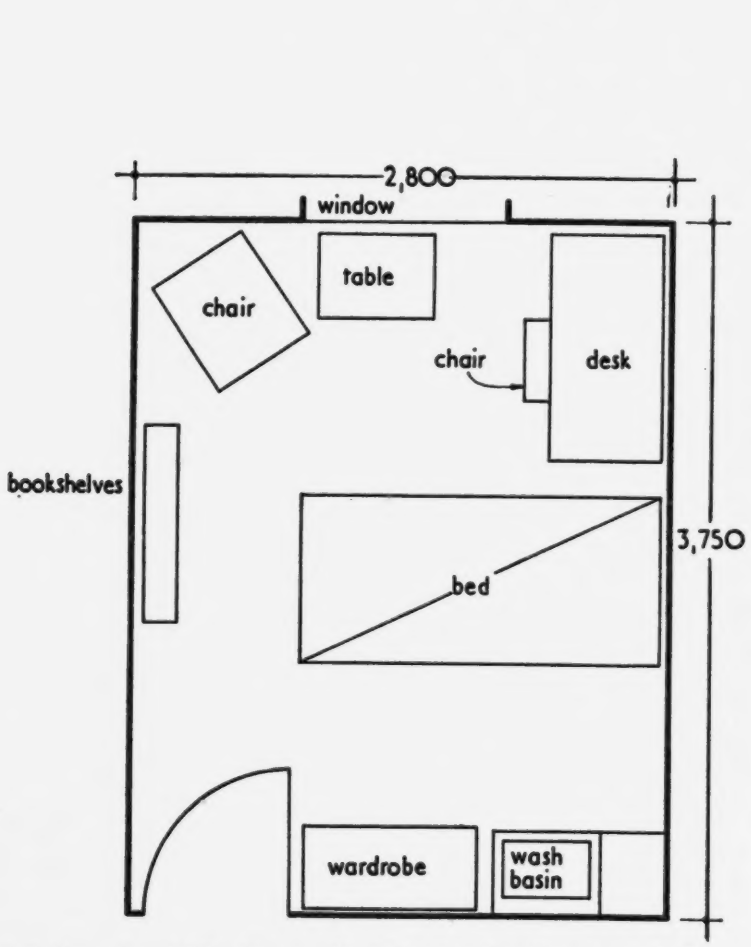
This article is an extension of the research reported in Hostel user study: **1** *Living accommodation for young people* [(98)] AJ *17.4.68 in which lighting of study-bedrooms, costs and other topics were discussed. This second article covers experience of storage fitments and furniture in the same schemes of hostels, halls and colleges. It was written by* PHYLLIS ALLEN *as part of a series of studies of living accommodation for young people carried out by the Building Research Station, and is published by permission of the director*

In this study nine schemes are examined in detail. It seemed desirable to treat the scheme with the annexe as two schemes for the purpose of storage fitments and furniture. The nine schemes are identified by numbers according to the volume of totally enclosed storage space—scheme one having the least and scheme nine the most. In most schemes single study-bedrooms are provided but two schemes have some double rooms as well. All the study-bedrooms have fitted washbasins and there is either a separate wardrobe or

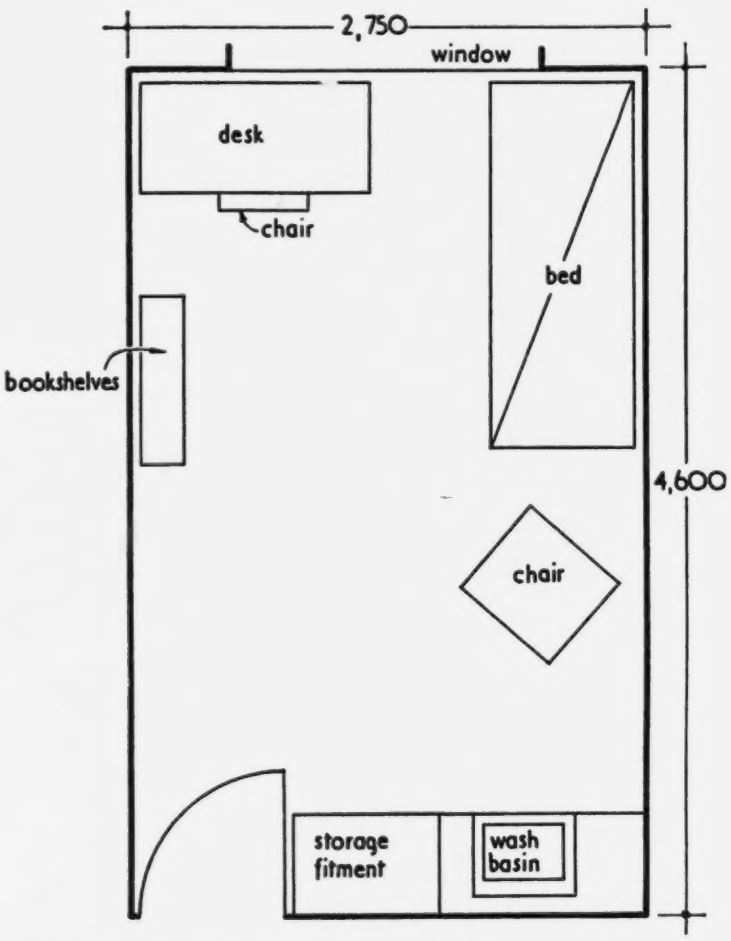


1 *Typical study-bedroom (12ft × 8ft), scheme one: for details of wardrobe see* **10**. *Dimensions on plans are metric. Imperial dimensions are given in captions*

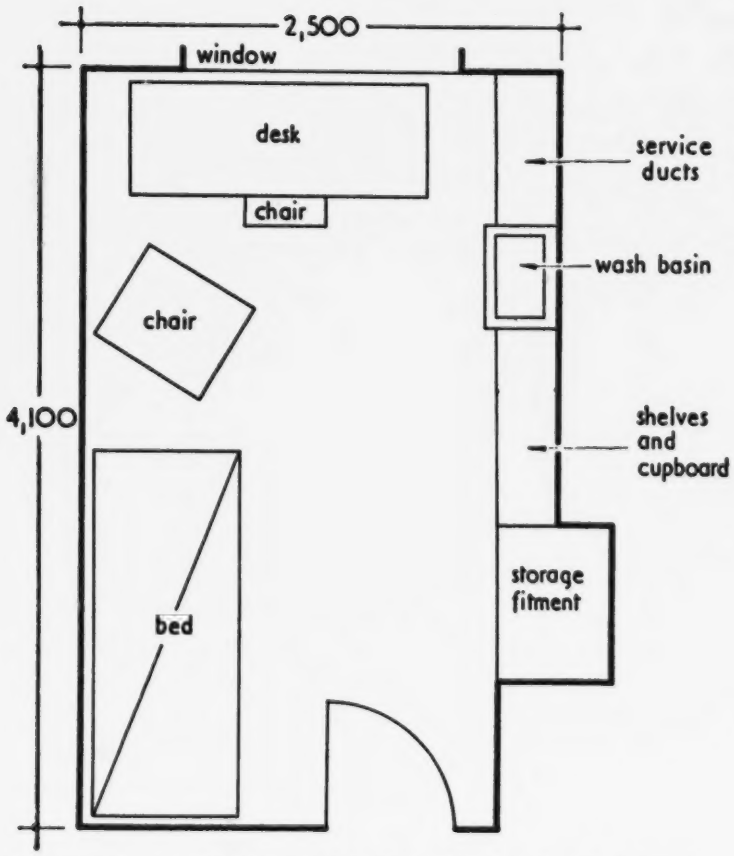
built-in fitment as the main storage unit. Open shelving and a desk with drawers are also provided, and in four schemes a bedside table. Room layouts are shown in **1** to **9**. All storage fitments and furniture are made of wood.



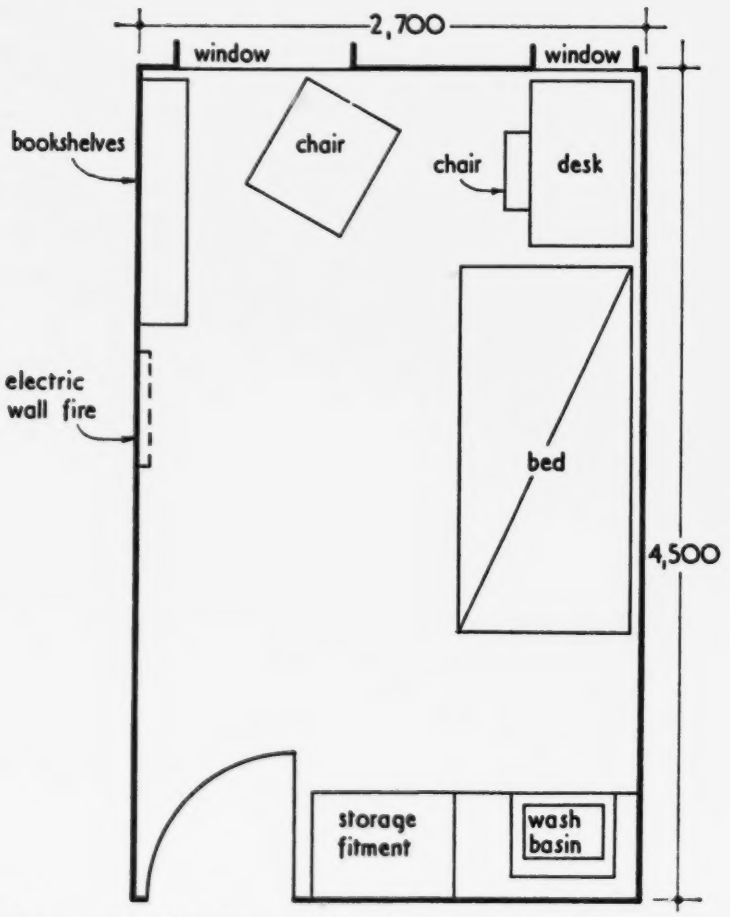
2 *Scheme two (12ft 3in × 9ft 3in): for details of wardrobe see* **11**



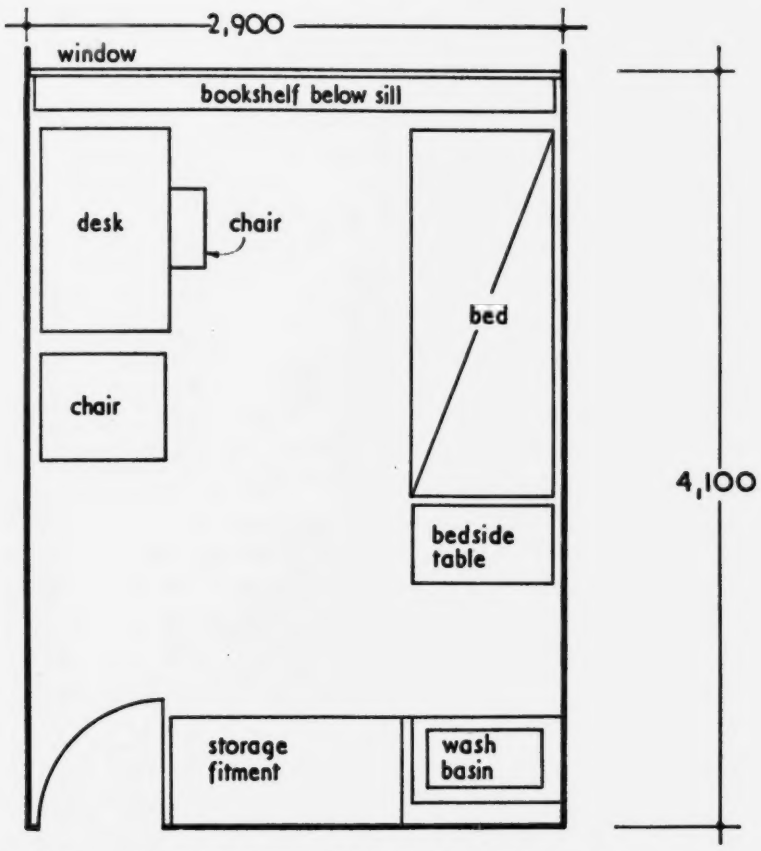
4 *Scheme four (15ft × 9ft): for details of storage fitment see* **13**. *Note that high level storage extends above door and basin*



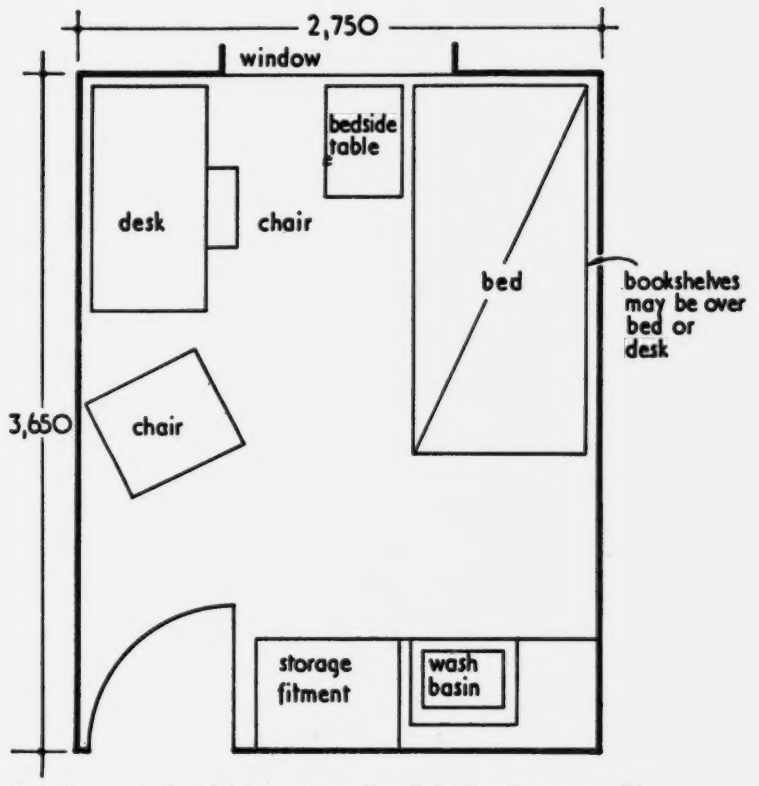
3 *Scheme three (13ft 4in × 8ft 3in): for details of storage fitment and adjacent high level storage see* **12** *(which shows fitment for handed layout*



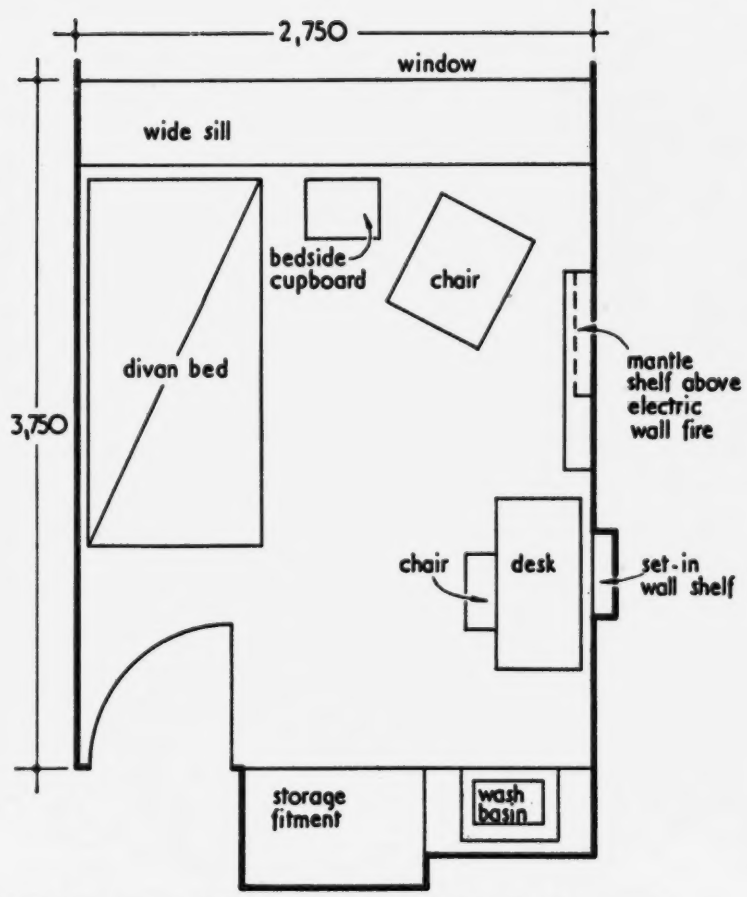
5 *Scheme five (14ft 9in × 8ft 9in): for details of storage fitment see* **14** *(which shows fitmen. for handed layout with high level storage above basin)*



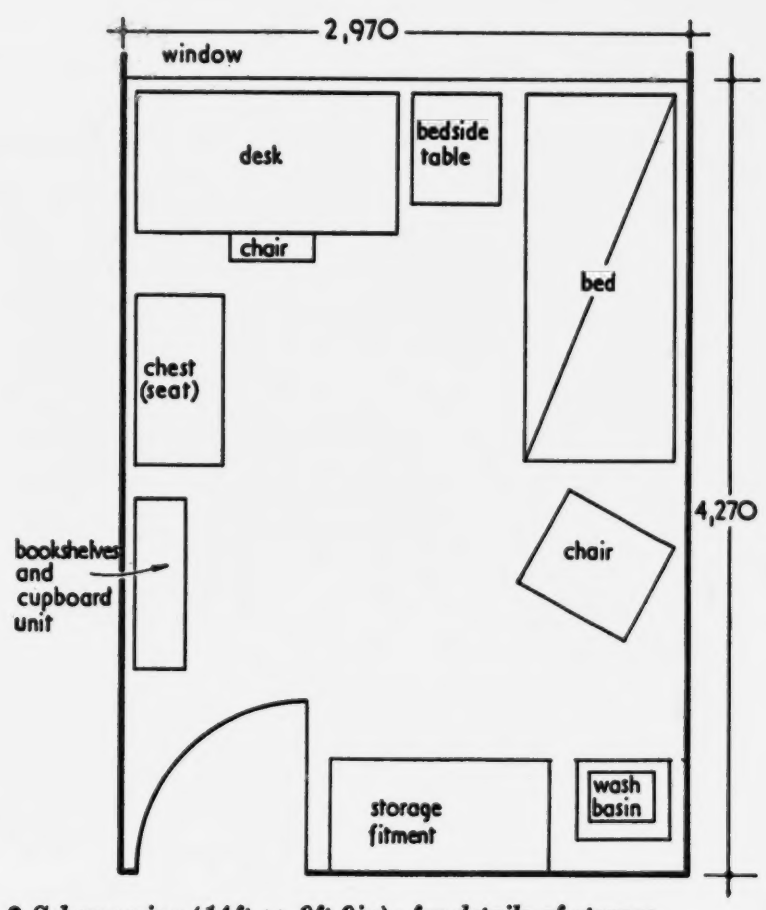
6 *Scheme six (13ft 4in × 9ft 5in): for details of storage fitment see* **15**



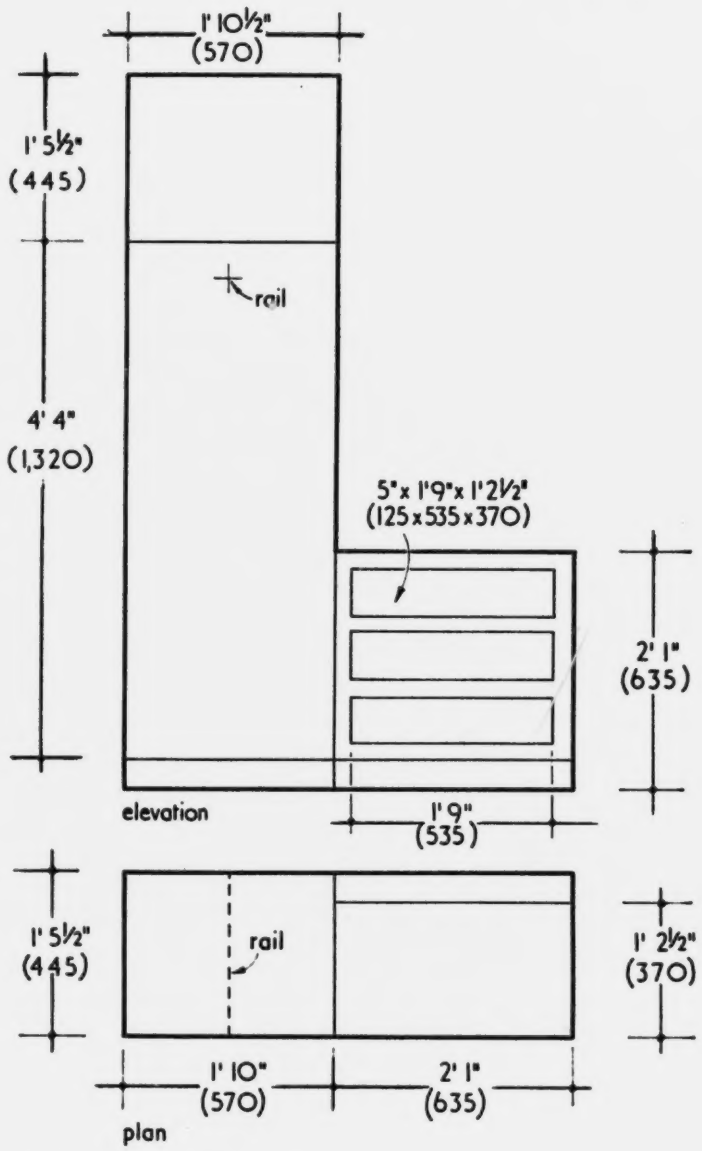
8 *Scheme eight (12ft × 9ft): for details of storage fitment see* **17** *(which shows fitment for handed layout with high level storage above basin)*



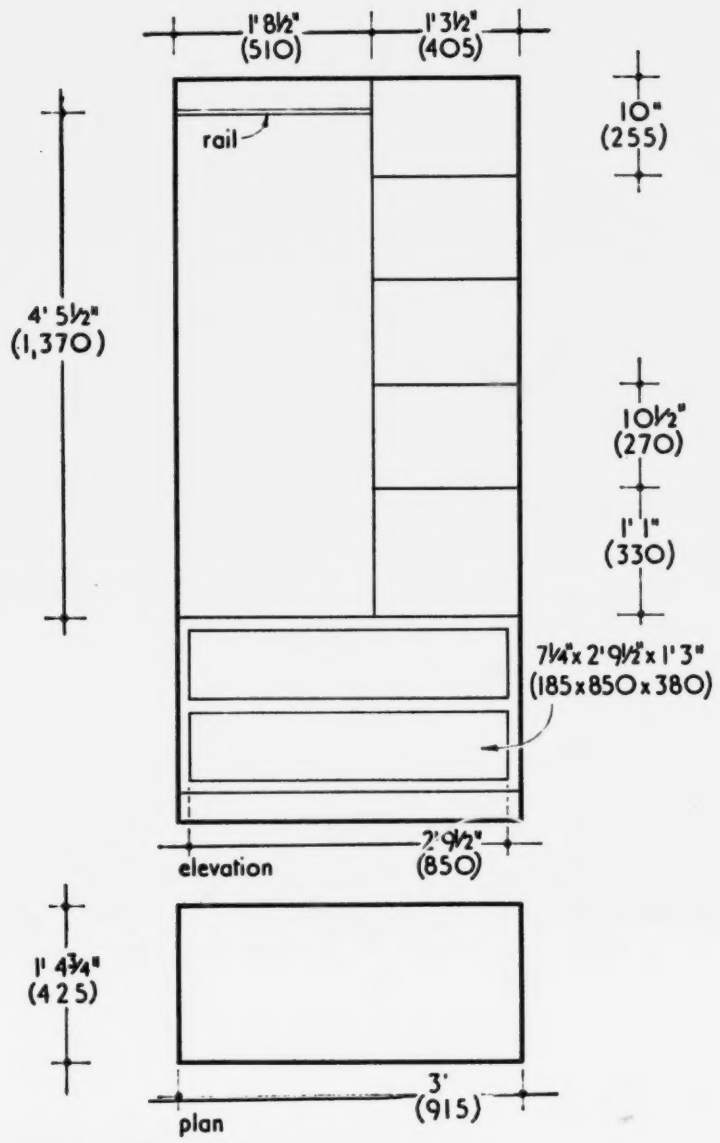
7 *Scheme seven (12ft 4in × 9ft): for details of storage fitment see* **16** *(which shows fitment for handed layout with high level storage above basin)*



9 *Scheme nine (14ft × 9ft 9in): for details of storage fitment see* **18**



10 *Wardrobe, scheme one*



11 *Wardrobe, scheme two*

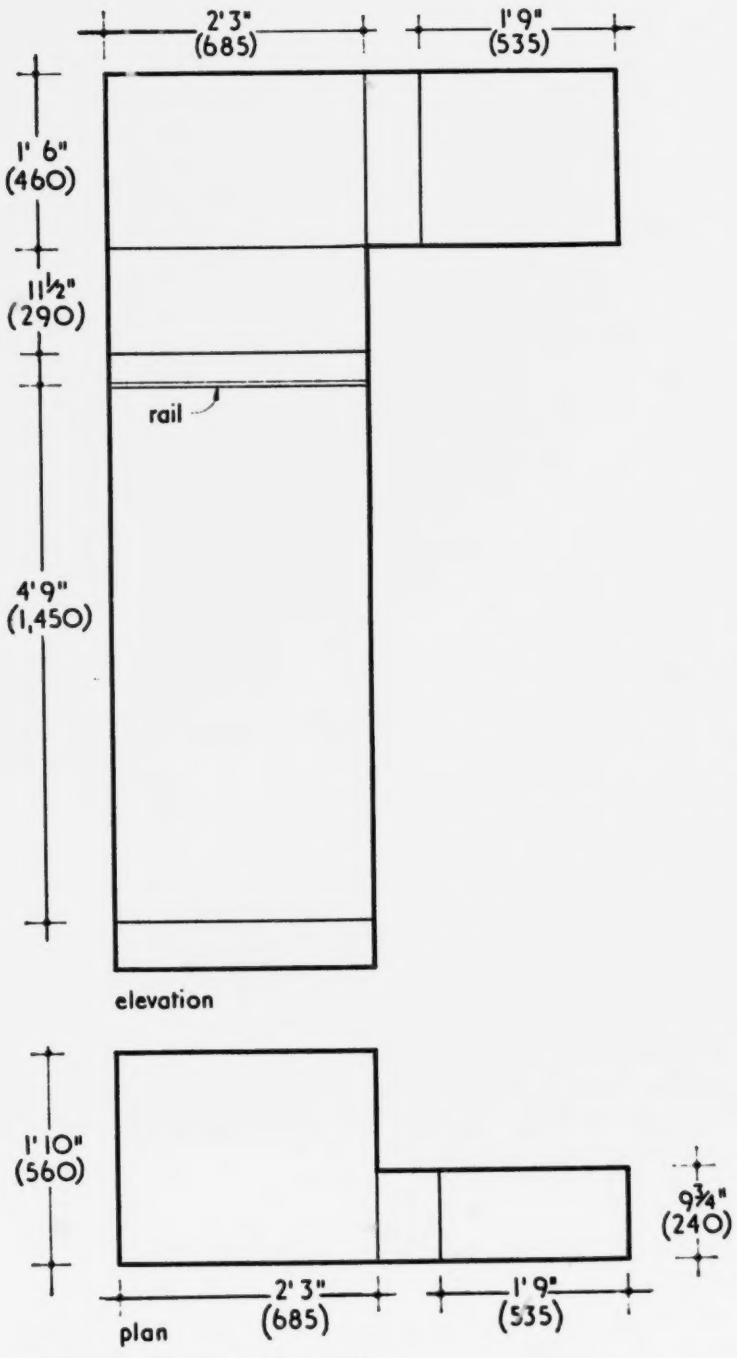
Main storage units

The main storage units in the study-bedrooms, measured *internally*, range in size from widths of 1ft 10½in to 4ft (570mm to 1220mm), depths from 1ft 4¾in to 2ft (430mm to 610mm) and areas at floor level from 2ft 3in to 8 sq ft 0,21m² to 0,74m²) **10** to **18**.

For hanging clothes there are rail runs from 1ft 5½in to 4ft (445mm to 1220mm). At some schemes these are almost equally shared between the main length for clothes hanging giving from 4ft 4in to 5ft 6in (1320mm to 1676mm) drop and a reduced length from 2ft 3in to 3ft 6in (686mm to 1067mm) drop, together giving a volume from 10 cu ft to 36 cu ft (0,28m³ to 1,02m³).

The volume of hanging capacity is calculated from the hanging rail to the bottom of the hanging space. Drawers and/or shelves below the reduced length of hanging space are built-in within the main unit in some schemes providing storage capacity from 2½ cu ft to 12 cu ft (0,7m³ to 0,34m³). As an alternative a loose set of drawers or shelves is feasible. Another arrangement is to have a full height stack of shelves and/or drawers to the side of the hanging space but within the main unit.

For shoe storage the base of the clothes hanging space is usually enough, but at one scheme shoe rails have been

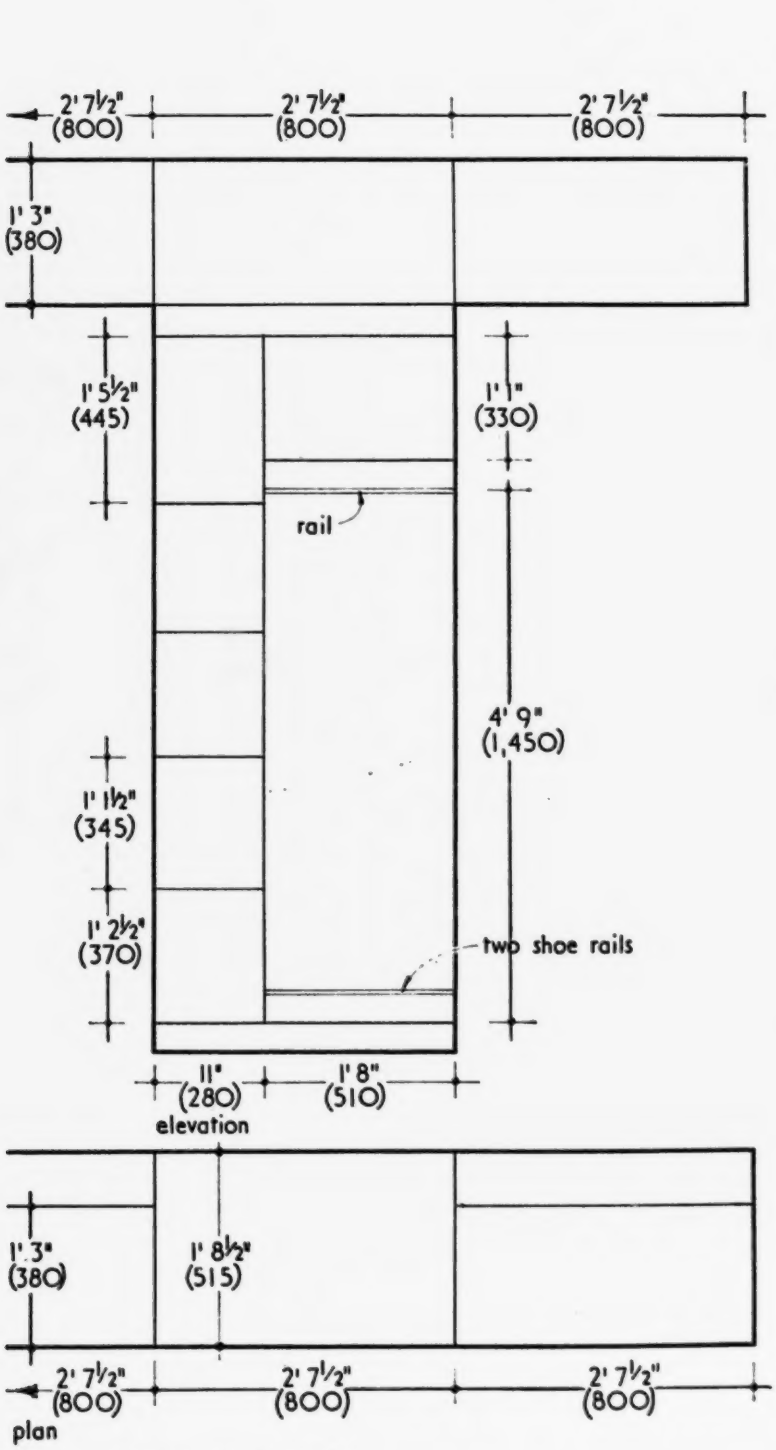


12 *Storage fitment, scheme three*

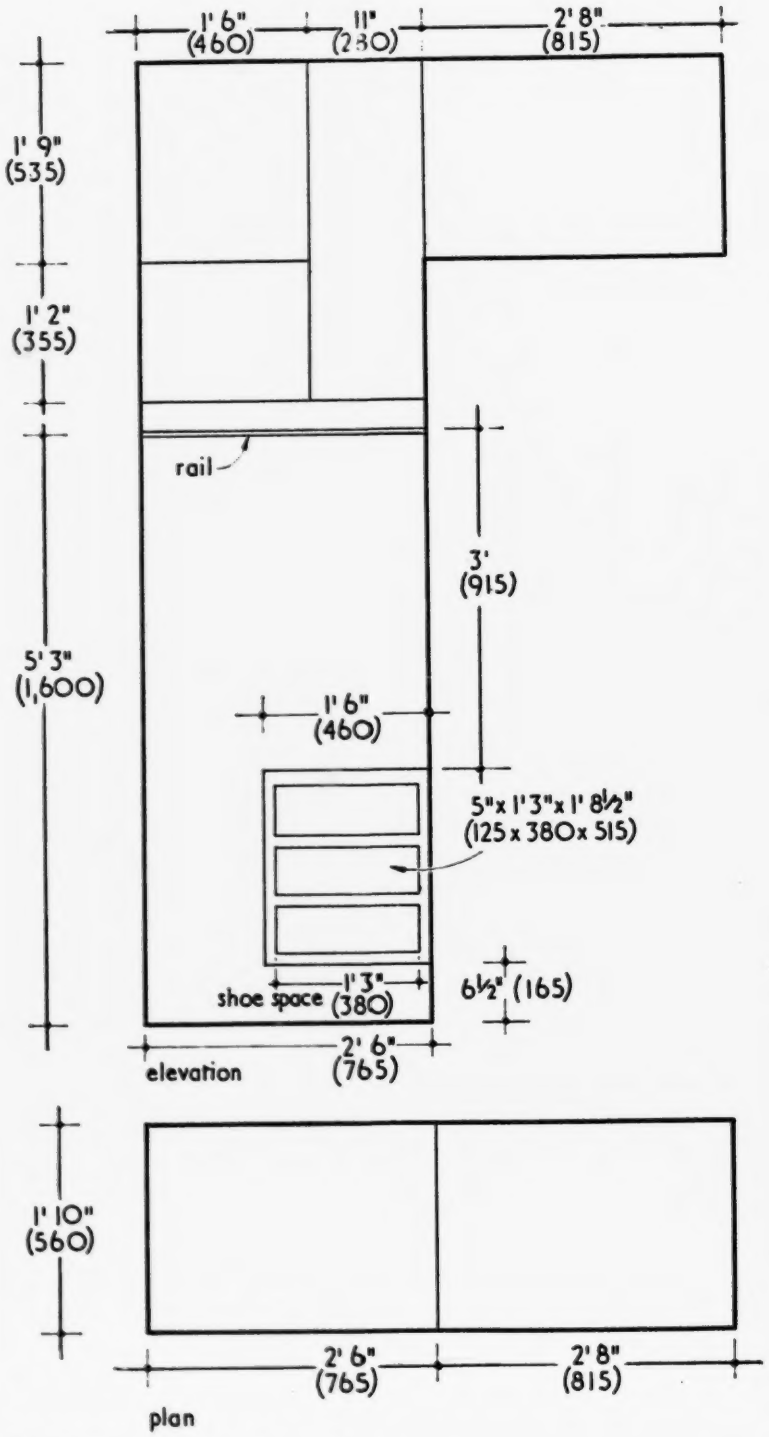
Table 1 Storage capacity provided in the study-bedrooms

Scheme	Type of main unit	Capacity of main unit			Total storage in room other than desk	
		Hanging m³ (cu ft)	Drawers and shelves m³ (cu ft)	Total* m³ (cu ft)	Area m² (sq ft)	Volume m³ (cu ft)
One	Loose wardrobe	0,28 (10)	0,07 (2½)	0,47 (16½)	1,12 (12)	0,51 (18)
Two	Loose wardrobe	0,31 (11)	0,33 (11½)	0,64 (22½)	1,63 (17½)	0,64 (22½)
Three	Floor to ceiling built-in fitment with 150mm (6in) plinth	0,51 (18)	0,11 (4)	0,86 (30½)	1,77 (19)	1,02 (36)
Four	Floor to ceiling built-in fitment with 6in plinth	0,38 (13½)	0,34 (12)	1,07 (37¾)†	2,14 (23)	1,08 (38)
Five	Floor to ceiling built-in fitment	0,51 (18)	0,07 (2½)	1,19 (42)	2,42 (26)	1,23 (43½)
Six	Built-in fitment, boarded in above	1,02 (36)	0,21 (7½)	1,23 (43½)	1,90 (20½)	1,36 (48)
Seven	Floor to ceiling built-in fitment	0,65 (23)	0,23 (8)	1,28 (45½)	3,16 (34)	1,36 (48)
Eight	Floor to ceiling built-in fitment	0,51 (18)	0,11 (4)	1,19 (42)	2,04 (22)	1,42 (50)
Nine	Built-in fitment with open shelf above	0,65 (23)	0,17 (6)	1,08 (38)	4,65 (50)	2,04 (72)

* Hanging plus drawers and shelves plus 'dead' storage space
† For men in single rooms; men in double rooms have 0,95m³ (33½ cu ft)



13 *Storage fitment, scheme four*



14 *Storage fitment, scheme five*

fitted, and at another shoe space is provided extending under the inset drawers.

Top cupboards to these main units provide storage space at the various schemes from 4 cu ft to 21½ cu ft (0,11m³ to 0,61m³). At one scheme instead of a closed-in top cupboard there is a large open space enabling a variety of awkward shaped objects to be stowed there; at another there is provision equal to four top cupboards of various shapes and dimensions, three enclosed by one door and one by a separate door **14**.

Total enclosed storage space

Other fitted cupboards and separate items of furniture also provided enclosed storage space. Bedside tables with drawer, shelf or cupboard are provided in schemes six, seven and eight. There are drawers under the divan bed at scheme nine and there is also a separate chest. These storage spaces, with any fitments in the wash basin compartments (but apart from storage space of the desk), when added to that of the main storage unit, give enclosed putting-down space for personal possessions ranging from 12 sq ft to 50 sq ft (1,12m² to 4,65m²) in area, and a total enclosed storage capacity from 18 cu ft to 72 cu ft (0,51m³ to 2.04m³).

Some of the storage is usually lockable.

Open shelving

Open shelves are provided for books and display of trophies, ornaments and so on, and these are from 4½in to 10in (114mm to 254mm) wide, and from 1ft 6in to 18ft (320mm to 5490mm) run. Window sills are not included in these measurements, but there are useful sills the full width of the study-bedrooms at two schemes. Open shelving may be a floorstanding bookcase, an inset shelf in a wall, a shelf under a long wide window sill, or one or more wall hung shelves.

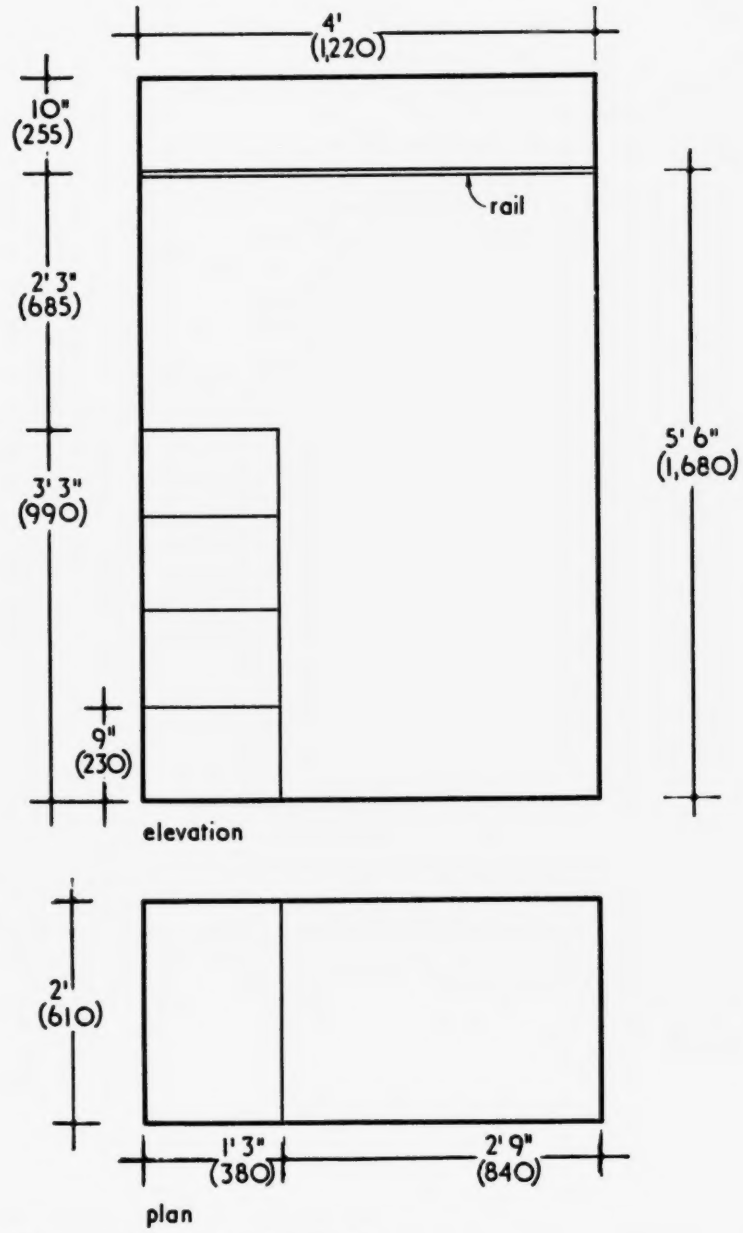
Desks

There are one to eight drawers to a desk. The desk at scheme three is easily the best in quality and size of those provided and would suit well a middle range business executive, while that at scheme nine has a filing cabinet and two other drawers. By contrast the desks at schemes one and five are poor in quality and small in surface area; they have one small drawer only, and are not in keeping with the quality of the fitments and other furniture in the rooms.

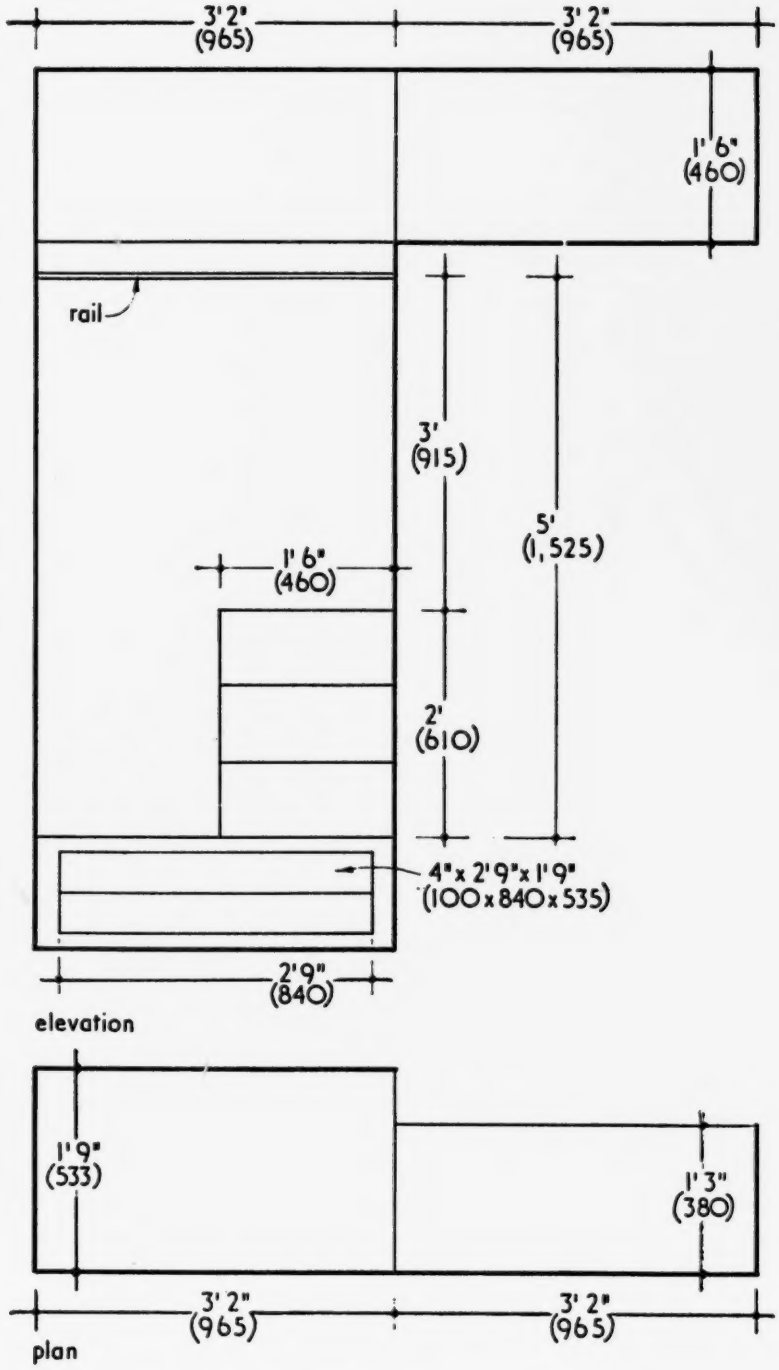
Pinboards

Surprisingly, pinboards were provided at schemes three and five only.

Whether it is reasonable to provide similar storage facilities,



15 *Storage fitment, scheme six*



16 *Storage fitment, scheme seven*

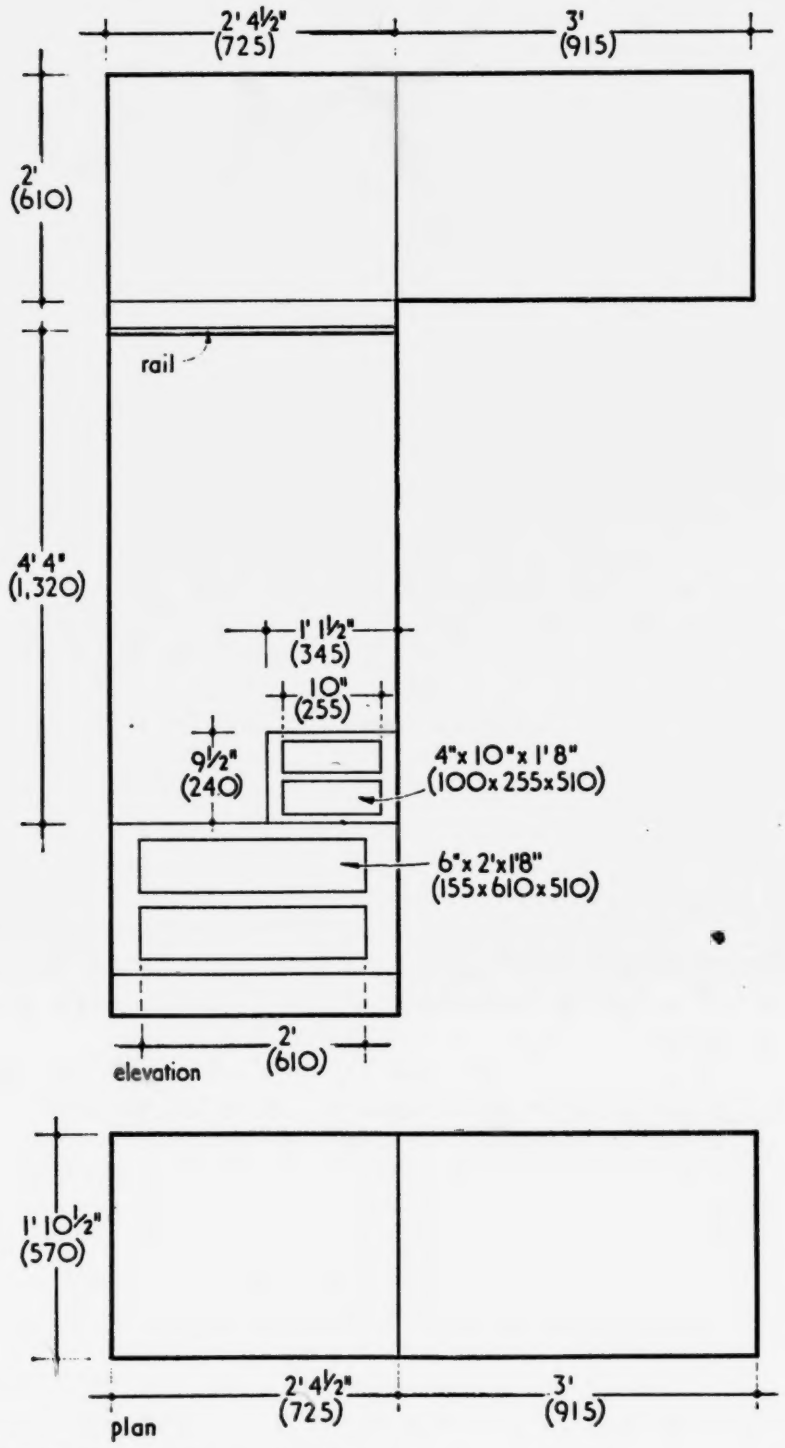
and to similar dimensions, in every scheme is a matter of preference and judgment, but it seems at first look that there is no common basis for provision at these schemes[1]. However the space available is not as unsystematic as at first appears.

The survey

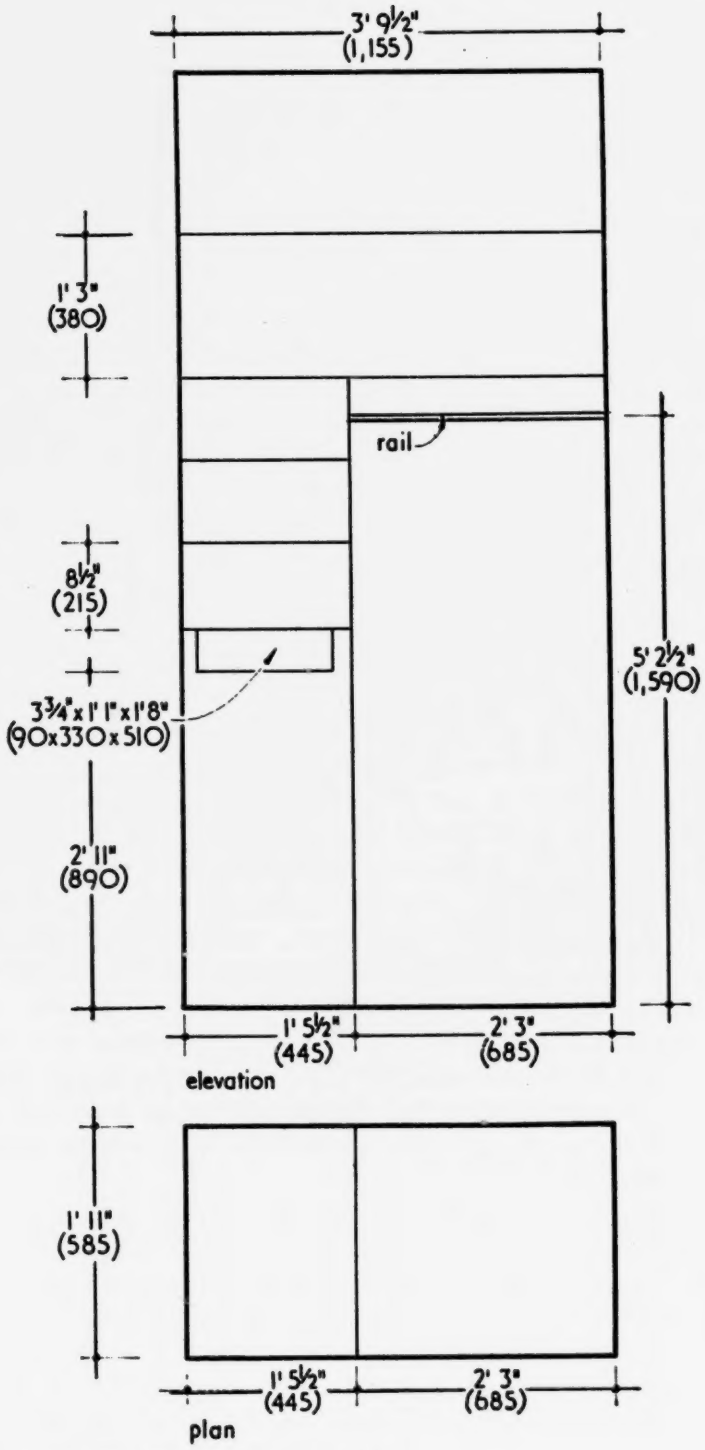
The information obtained by the survey is at three levels:
(*a*) Response from group discussions with residents and others at the nine sample schemes, with measurements and observations.
(*b*) Response from questionnaires completed between July 1965 and November 1966 by residents at schemes one to three and eight where only general questions were included on the questionnaires, and at schemes four to seven and nine where more specific questions were asked about storage. Residents' response in completing questionnaires ranged from 62 per cent at scheme three, to 96 and 100 per cent at two of the three blocks of scheme seven. The average response for the nine schemes was 80 per cent, and the total number of completed questionnaires 1314.
(*c*) Information from group discussions, interviews and visits covering a wide range of other schemes, and including experience of other administrators, designers, student representatives, and many individuals.

Notes on the nine schemes

Schemes one to three and eight are general hostels for young people run by voluntary organisations, and schemes four to seven and nine are hostels, halls and colleges for students and a few academic staff run by governmental authorities. Students comprise 77 per cent, 55 per cent, 26 per cent and 87 per cent of residents completing questionnaires at schemes one to three and eight respectively.
Scheme one is a women's hostel catering for student nurses on short courses as well as for student teachers and others on full term courses and other long-stay residents. Many of the students and other residents have homes within easy travelling distance where spare clothes and other items can be kept, but for a few the hostel is a more or less permanent residence.
Scheme two is a men's hostel catering for apprentices, trainees, technical, commercial and university students. The hostel takes a proportion of men from overseas and has some other long stay residents.
Scheme three is a hostel for young business and professional men. The hostel has some long term residents and caters also for some students.
Scheme four is a university men's hall of residence associated with a college of science and technology.
Scheme five comprises three adjacent halls of residence for a



17 *Storage fitment, scheme eight*



18 *Storage fitment, scheme nine*

former college of advanced technology now a university.
Scheme six comprises residential accommodation for men and women students at a college of education. Many of these students have homes within easy travelling distance of the college. At the time of the station's study there were no students from overseas.
Scheme seven comprises the three blocks of a hostel for student nurses and nurses. More money was available for this scheme than is now customary. Many of the occupants have homes within easy travelling distance but a proportion come from long distances in the UK and there are some from overseas.
Scheme eight is the annexe to scheme two.
Scheme nine is a college for young men, many used to living in boarding-school, and for many senior overseas students.
The clients' influence on the storage provision at these schemes has been strong. Only at schemes four, six, seven and eight can it be said that decisions on storage provision were made by architects. Clients' expenditure on furniture items was thought by architects to be lavish, especially at scheme nine.

Use of storage space

From observations at the nine sample schemes, and from visits to other schemes, there is evidence that in the disposition of their effects, students and other young people are highly adaptable. However, personality and circumstances strongly affect attitudes to storage provision and use. For residents who have homes within easy distance, and/or have use of private transport, in general storage problems can be overcome by not having too many possessions at the hostel. For long stay residents, especially for those from overseas, there may be difficulties to the point that work and spare time activities are hampered.
In the main unit, and in other storage items, provision designed for clothes storage may be used for many miscellaneous goods. Clothes hanging space may be used for a variety of types of articles, eg for photographic or sports equipment as well as for clothes hanging, either because the clothes hanging capacity provides the appropriate enclosure or because this is lockable. A small number of students with shelf storage and no drawers in the main unit provided themselves with trays or boxes to give convenient handling and/or full enclosure to small articles.
For clothes hanging, especially for jackets and top coats, cupboard depths (measured internally) of less than 1ft 10in (559mm) do not permit garments to hang conveniently on well designed coat hangers on a rail. Where depths of less than this are provided longer rail runs are required for the same number and thickness of garments. For convenient hanging a man's coat requires 6in (150mm) of rail run, and space for up to four coats and jackets should be allowed plus space for other items. For women with the short coats and dresses currently fashionable, the main length for clothes hanging is not critical at their schemes. Full length evening dresses may need special provision. Often they can be folded in a long drawer; if materials are crushable and can be ironed, these are usually freshly ironed for special occasions. Convenient space for nurses' and other uniforms, and to avoid crushing collars, sleeves and shoulders of garments is important.
Top cupboards are used for suitcases, sports gear, models and drawings. For young people, reaching top cupboards in rooms in these schemes is not a serious problem.
Other enclosed storage spaces are important, especially a separately enclosed space for toilet and health necessities. Most young people like to keep a small amount of food in their rooms with essential crockery and utensils. Space either enclosed or open for musical instruments, sports gear and equipment for hobbies is also required.
Open shelving may be used to display treasures or as putting-down space instead of a table. It may serve for trophies, photographs, pictures, books, flowers, fruit, plants, models, pieces of machinery and electrical or sports gear, food, crockery, cutlery, needlework, cosmetic and other toilet items.

User experience

User experience culled from the group discussions is summarised below:
(*a*) A main built-in unit, full height from floor to ceiling, with top space for a weekend suitcase should be provided; this top space preferably should be lockable.
(*b*) At least one drawer, preferably lockable, should be provided within the main unit.
(*c*) Open shelving for books and display items should be wall hung.
(*d*) Pinboards are popular.
(*e*) Other items are better as separate furniture.
The experience extracted from the questionnaires completed by residents at the nine schemes supports and elaborates the points resulting from the group discussions.
The survey did not reveal any strong desire for any more built-in furniture than the main unit and some wall shelving
The survey has shown that, for an overall favourable response, storage provision should satisfy the following requirements:
(*a*) Certain specific aspects of the storage must be satisfactory; for example, the depth of the cupboard for clothes hanging, the height of any drawers, space for a bulky garment and for a suitcase, and some lockable space.
(*b*) The main storage unit must provide an efficient solution: for example a built-in fitment.
(*c*) Other items of enclosed storage should augment provision of the main unit so that the total amount of enclosed storage is satisfactory to the individual resident.
(*d*) The open shelving should provide enough area for book shelving and display needs, and also help to meet any requirements outstanding from the enclosed storage provision, with any requirements outstanding from desk, table and other putting-down places, to the satisfaction of the resident. Open shelving is the easiest to provide.
Two of the schemes with the most enclosed storage (schemes seven and nine) received the most favourable response from residents on general storage, drawers and cupboards, and scheme nine also on open shelving. The college principal of scheme nine had specified plenty of storage capacity; it seems that his requirement has been amply met and the response from the residents appears to endorse his assessment of the importance of storage capacity. At scheme five, the college principal had specified the best quality of main storage unit, but the student response there was much less favourable. This response is related to a number of aspects of the storage, including those put forward under (*a*) to (*d*) above.
The residents' comments on their questionnaires stress objection to waste of space as well as to inadequacy for particular requirements. At schemes one and two, the residents noted that the space above the separate wardrobes could not be properly utilised. At scheme six the lack of a top cupboard above the main fitment was frequently mentioned as space wasted. Also at scheme six the considerable unusable space above the clothes hanging rail received much unfavourable comment.
Comment showed appreciation of 1ft 10in (559mm) depth of space for clothes hanging in the main unit, but adverse

mention where depths are less than this.

Schemes seven, eight and nine are the only ones with both drawers and shelves in a built-in fitment. The need for both drawer and shelf space, and for appropriately sized spaces for small and also for bulky articles, received frequent mention.

The top cupboards at scheme five were specially appreciated, but lack of these, as already noted, at scheme six made difficulties for residents. Although some residents had difficulties with reach, the advantages of top cupboards for use by young people overweigh problems of reach—more important to young people than ease of reach is the space available in top cupboards. In fact, lack of enough space for suitcases has led to the use of soft bags for weekend use; and these are not the best of containers for men's suits, nor for dresses and jackets that need pressing rather than ironing when crushed or creased.

Comments on the questionnaires show preference for wall hung open shelves, and those most favoured are at schemes six and nine with widths of 7½in, and 8in and 10in (191mm and 203mm and 254mm), and 14ft 6in and 9ft (4280mm and 2740mm) runs respectively at these two schemes.

The success of floor units depends very much on the amount of floor cleaning that is necessary and on the care with which it is executed. At scheme seven the 4½in (114mm) wide wall inset shelf is disliked. At scheme five the response shows a need for more open shelving for display as well as a reflection of the lack of shelf space in the main unit. The need at scheme five for more open shelving is also linked with the small working area of the desk.

Discussion of the survey and other experience

It is the experience of this survey that students and other young people in general expect a main storage unit, comprising clothes hanging and putting-down space of drawers and shelves, to be a built-in fitment making full use of the floor to ceiling height in a study-bedroom. By contrast, only a few individuals at the group discussions considered a built-in desk desirable and rarely was a built-in bed desired other than for short term use and special circumstances. A bed, however, should be convenient for daytime use. (Most of the university students at the group discussions knew about the Henry Price building at Leeds University with its built-in desk and set-in bed.) The discussions and comments on the questionnaire showed that young people like to be able to move desk and bed around to take advantage of seasonal views, make best use of sunlight and of electric lighting arrangements, and to have a change; and in particular to make rooms different.

User needs on storage fitments and furniture require a loose fit to take account of individual differences in requirements and circumstances. In general, schemes with the most storage capacity receive the most favourable response from residents; wasted space in fitments and rooms is strongly criticised.

At most schemes more attention could have been given to the use of the space above, around and below the wash basin. A shelf or, if costs permit, preferably a cupboard is desirable for toilet requisites. This should be so sited that there is free movement for face washing at the basin. Use of the space above the wash basin to drip-dry clothes up to the size and weight of two or three men's shirts at a time should be arranged. The basin can be fitted on either side with work surfaces that can serve both as putting-down places and, like draining boards, prevent drips going onto the floor. Below the wash basin and its work surfaces a bin or compartment for dirty clothes is needed, and putting-down space free from water drips for muddy shoes and other wet or dirty gear. The finish to the wall and other surfaces around this area should obviously stand up to water splashing. A towel rail is also essential.

The Ministry of Housing and Local Government in its Design Bulletin *Space in the home*[2] from manufacturers' typical examples gives 1ft 10in (559mm) as the external depth for a wardrobe and 2ft, 3ft and 4ft (610mm, 910mm and 1220mm) as typical widths. It also gives 1ft 10in (559mm) as the width or depth to be allowed for a coat hanger in use. It is the experience of this study that the figure of 1ft 10in (559mm) should be recommended as the *internal* depth as more recently recommended by the Ministry in Housing Circular 36/67[3].

With 1ft 10in (559mm) depth, the station's survey shows a rail run of 2ft 6in (762mm) as a minimum for clothes hanging. Taylor[4] in his survey found 2ft 6in (762mm) adequate for men for clothes hanging. Since the clothes hanging space is used also for other items, a 3ft (914mm) run is recommended here.

Possibly because of cost, *Student residence*[5] makes no recommendation on drawers in the main storage unit. One drawer with at least 6in (152mm) height is desirable, preferably lockable. Where up to four drawers are provided these are appreciated, and where a wide drawer of this height is available.

On shelf width within the main built-in fitment the findings of this survey support 1ft 6in (457mm) with 7in to 8in (179mm to 203mm) clear between the shelves.

Taylor[4] found 30 sq ft (2,79m²) of shelf space of all types to be adequate; this included flat storage space on cupboard floors, but not cabinets and shelves over wash basins, and not book and open display shelving. This area is met only at schemes seven and nine, but user experience from these and

Table II *Storage requirements*

Enclosed storage	Schemes with the requirements
(*a*) Built-in fitment as main unit (modern, economical in production, space saving, expected)	Three to nine
(*b*) Utilisation of full height from floor to ceiling by the built-in fitment (otherwise space is wasted)	Five, seven to nine
(*c*) Internal depth of clothes hanging space 1ft 10in (559mm) (to take jackets and coats)	One, three, five, six, eight, nine
(*d*) Rail run 3ft (91mm) (part long length, part reduced length—this hanging space is used for other items as well as clothes)	Six, seven
(*e*) Inner drawer in main unit (preferably lockable)	Five, seven, eight, nine
(*f*) Two shelves in main unit, width 1ft 6in (457mm) 7in to 8in (178mm to 203mm) clear between the shelves (easy access, necessary for bulky items)	Seven
(*g*) Four compartments in the main unit apart from clothes hanging space and top cupboard space (if one or more of these are drawers, internal height 6in (152mm), if shelves then as (*f*))	Two, four, six, eight, nine
(*h*) Top cupboard with space for a suitcase (preferably lockable)	One, three to five, seven to nine
(*i*) Other items of enclosed storage as fitments or separate furniture, so that in all, there is a total area of enclosed storage 32sq ft (2,97 m²)	Seven, nine
(*j*) Ratio of area to volume including both shelf and drawer provision as well as clothes hanging enclosed storage from 1 :1,4 to 1 :1,7	One, four, five, seven, nine
(*k*) Volume of enclosed storage 50cu ft (1,42m³)	Eight, nine
Other requirements	
(1) Open-shelving width 7in to 8in (178mm to 203mm), minimum run 9ft (2,74m) (preferably wall hanging; up to 14ft (4,27m) if the total of fittings and furniture is low on 'putting-down' surfaces)	Four, six, eight
(*m*) Pinboard	Three, five
(*n*) Lockable storage or some other acceptable arrangement for security of valuable articles	All schemes

the other sample schemes suggests 32 sq ft (2,97m²) as a general recommendation for enclosed storage, excluding desk storage.

Shelving for books and so on is preferred as a wall fitting. Taylor[4] found from 13ft to 15ft (3960mm to 4570mm) run of book shelving adequate. This survey suggests shelving 7in to 8in (178mm to 203mm) wide and 9ft (2 740mm) as a minimum run, with preferably up to 14ft (4270mm), some of which should be wider than 8in (203mm). The heights of shelving at these schemes are not critical, mainly because some clear headroom space is available at all schemes. However, adequate clearance should be arranged.

It is possible to take the experience from this survey supported as appropriate by other experiences and recommendations to devise an outline brief for designers.[4, 5, 6, 7] This is given in table II in association with the provision at the nine schemes.

The scores for each scheme from the storage requirements listed in table II are shown in table III. The table also shows the residents' response on general storage for schemes four to seven and nine, and the rank order of response from schemes one to three and eight to a general question about storage. Where the residents' response on drawers, cupboards and open shelving showed 70 per cent or more responding favourably, the general storage percentage figures in table III are asterisked.

Table III *Storage provision and residents' response*

Schemes (showing No of completed questionnaires)	Storage provision (Scheme score from table II out of fourteen items)	Residents' response (percentage)	Rank order
One (48 women)	4	—	4
Two (98 men)	2	—	3
Six (319 men and women)	6	47	—
Three (59 men)	5	—	2
Five (419 men) (three halls)	8	67*	—
Four (145 men)	6	71*	—
Eight (63 men)	9	—	1
Seven (77 women)	9	77**	—
Nine (86 men)	10	83***	—

Tables II and III together show priorities in storage provision to be:

(*n*) lockable storage or other acceptable arrangement for the security of valuables;

(*a*) built-in fitment as main unit;

(*h*) top-space for a suitcase;

(*b*) utilisation of full height from floor to ceiling;

(*i*/*k*) space (area/capacity).

These items are common to schemes nine, eight and seven, and (*a*) (*h*) (*b*) provide the vertical dimension for a storage unit.

After these priorities next should come:

(*c*) internal depth of clothes hanging space 1ft 10in (559mm). This item is common to schemes nine and eight, and provides the second dimension—storage depth for clothes hanging.

The third dimension—width—is flexible, but a minimum of 3ft (914mm) (*d*) provided in scheme seven seems reasonable.

At any scheme there may be 10 per cent to 15 per cent of residents with special storage requirements. Where demands on storage are high because of work requirements as with nurses, and teachers of certain subjects, and, if money is also tight, as at scheme six, special problems are posed for designers. It will be interesting to see what designers produce from the brief shown in table II according to the cost limits under which they may have to operate.

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